

REMARKS

The above claim amendments are presented in order to remove multiple claim dependencies, so as to reduce the required filing fee.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attachment page is captioned "Version with markings to show changes made."

Respectfully submitted,

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the light beam being light output from the semiconductor laser driven by the laser drive means;

a focus control means for controlling a focal position of the convergence point of the light beam converged by the convergence means on the optical disc;

a tracking control means for positioning the convergence point of the light beam converged by the convergence means on a track of the optical disc;

a tilt control means for controlling tilt of the convergence point of the light beam converged by the converging means at the optical disc surface;

a photodetection means for detecting reflection of the converged light beam from the optical disc; and

a convergence detection means for detecting convergence of the light beam emitted to the plural data layers of the optical disc;

wherein the tilt position is set for each of the plural data layers based on output from the convergence detection means.

8. An optical disc drive as described in ^{claim 2} ~~any of claims 2 to 7~~ wherein the detection value output by the convergence detection means is the result of the photodetection means detecting peak and valley prepits preformed to plural locations in one revolution of continuous tracks on the optical disc.

9. An optical disc drive as described in ^{claim 2} ~~any of claims 2 to 7~~ wherein the detection value output by the convergence detection means is the result of the photodetection means detecting guide grooves preformed on the optical disc.

10. An optical disc drive as described in ^{claim 2} ~~any of claims 2 to 7~~ wherein the detection value output by the convergence detection means is the result of the photodetection means detecting a recording signal written to a data area of the

optical disc.

11. An optical disc playback method comprising:

an optical disc having plural data layers;

5 a laser drive step for driving a semiconductor laser;

a converging step for converging a light beam on the optical disc, the light beam being light output from the semiconductor laser driven by the laser drive step;

10 a focus control step for controlling a focal position of the convergence point of the light beam converged by the convergence step on the optical disc;

a tracking control step for positioning the convergence point of the light beam converged by the convergence step on a track of the optical disc;

a photodetection step for detecting reflection of the converged light beam from the optical disc; and

15 a convergence detection step for detecting convergence of the light beam emitted to the plural data layers of the optical disc;

wherein the laser drive step is controlled according to output from the convergence detection step, and light beam emission power when reading the disc is set separately for the plural data layers of the optical disc.

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12. An optical disc playback method comprising:

an optical disc having plural data layers;

a laser drive step for driving a semiconductor laser;

25 a converging step for converging a light beam on the optical disc, the light beam being light output from the semiconductor laser driven by the laser drive step;

a focus control step for controlling a focal position of the convergence point of the light beam converged by the convergence step on the optical disc;

claim 11
 17. An optical disc playback method as described in ~~any of claims 11 to 16~~,
 wherein the detection value output by the convergence detection step is the result of
 the photodetection step detecting peak and valley prepits preformed to plural
 locations in one revolution of continuous tracks on the optical disc.

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claim 11
 18. An optical disc playback method as described in ~~any of claims 11 to 16~~,
 wherein the detection value output by the convergence detection step is the result of
 the photodetection step detecting guide grooves preformed on the optical disc.

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claim 11
 19. An optical disc playback method as described in ~~any of claims 11 to 16~~,
 wherein the detection value output by the convergence detection step is the result of
 the photodetection step detecting a recording signal written to a data area of the
 optical disc.

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20. An optical disc as described in claim 1, wherein optical reflectance
 and transmittance of the plural data layers in conjunction with light beam emission
 are different on the plural data layers.

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claim 1
 21. An optical disc in ~~any of claims 1 to 20~~, comprising preformed peak
 and valley prepits plurally disposed to one revolution of a continuous spiral track,
 and recording areas in both preformed groove tracks (guide grooves) and land
 tracks between the groove tracks.

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22. An optical disc drive comprising:
 an optical disc having plural data layers;
 a laser drive means for driving a semiconductor laser;
 a converging means for converging a light beam on the optical disc,
 the light beam being light output from the semiconductor laser driven by the laser

beam;

wherein the optical disc drive controls the laser drive means based on output from the convergence detection means, and sets the recording waveform separately for the plural data layers of the optical disc.

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24. An optical disc drive as described in claim 22 ~~or 23~~ characterized by recording and reproducing an optical disc comprising a first substrate having a first data layer;

10 a transparent reflection layer formed on the first data layer of the first substrate;

a second substrate having a second data layer to which is disposed a recordable film for recording and reproducing information; and

an adhesive layer for bonding the first substrate and second substrate with the first data layer and second data layer facing each other;

15 configured so that information recorded to the first data layer and second data layer is read through the first substrate.

25. An optical disc drive as described in claim 22 ~~or 23~~, wherein the detection value output by the convergence detection means is the result of the photodetection means detecting a prewritten signal from a read-only area of the optical disc.

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26. An optical disc drive as described in claim 22 ~~or 23~~, wherein the detection value output by the convergence detection means is the result of the photodetection means detecting peak and valley preprints preformed to plural locations in one revolution of continuous tracks on the optical disc.

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27. An optical disc drive as described in claim 22 ~~or 23~~, wherein the

— detection value output by the convergence detection means is the result of the photodetection means detecting guide grooves preformed on the optical disc.

28. An optical disc drive as described in claim 22 ~~or 23~~, wherein the
5 detection value output by the convergence detection means is the result of the photodetection means detecting a recording signal written to a data area of the optical disc.

29. An optical disc drive comprising:
10 an optical disc having plural data layers;
a laser drive means for driving a semiconductor laser;
a converging means for converging a light beam on the optical disc,
the light beam being light output from the semiconductor laser driven by the laser
drive means;

15 a focus control means for controlling a focal position of the convergence point of the light beam converged by the convergence means on the optical disc;

a tracking control means for positioning the convergence point of the light beam converged by the convergence means on a track of the optical disc;

20 a photodetection means for detecting reflection of the light beam from the optical disc; and

a convergence detection means for detecting convergence of the light beam;

25 wherein the optical disc drive controls the laser drive means based on output from the convergence detection means, and when recording to any of the plural data layers other than the first data layer sets light beam emission power for recording separately for each recording layer based on recording mark density in the first data layer where the light spot passes.

an adhesive layer for bonding the first substrate and second substrate with the first data layer and second data layer facing each other;

said optical disc configured so that information recorded to the first data layer and second data layer is read through the first substrate,

5 the first data layer and second data layer each have a separate user data area for recording and reading information, a learning area for test recording, and a read-only area for reading information, and

recording-prohibited area where writing data is prohibited is provided in a specific part of the learning area in the first data layer.

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32. An optical disc as described in claim 31, wherein the location of the recording-prohibited area is recorded with modulated prepits prerecorded to the read-only area.

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33. An optical disc drive as described in claim 29 or 30 for recording and reading an optical disc comprising:

a first substrate having a first data layer;

a transparent reflection layer formed on the first data layer of the first substrate;

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a second substrate having a second data layer to which is disposed a recordable film for recording and reproducing information; and

an adhesive layer for bonding the first substrate and second substrate with the first data layer and second data layer facing each other; and

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configured so that information recorded to the first data layer and second data layer is read through the first substrate.